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Design and R&D for the PHENIX Muon Trigger RPCs YOUNG JIN KIM, University of Illinois at Urbana-Champaign, PHENIX COLLABORATION — Resistive Plate Chambers (RPCs) have been widely used for trigger or time-of-flight applications in high energy physics and nuclear physics experiments. The PHENIX experiment at the Relativistic Heavy Ion Collider (RHIC) at Brookhaven National Laboratory (BNL) upgrades its first level muon trigger with tracking stations of double-gap RPCs. This will make it possible to study flavor separated quark and anti-quark polarizations of the proton by measuring the spin dependent yields of W-bosons in polarized proton-proton collisions. The RPC design for the PHENIX muon trigger is based on technology developed for the CMS endcap muon trigger RPCs. In this talk we introduce the general detector design and discuss the results of RPC detector performance R&D carried out at several PHENIX institutions with different prototypes, including prototypes manufactured in the CMS RPC factory at Korea University in Seoul.

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